

Silicon NPN Power Transistors

T-33-11

TIP47
TIP48
TIP49
TIP50

TO-220 Package

Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	TIP47	TIP48	TIP49	TIP50	Unit
Collector-Base Voltage	V _{CB0}	350	400	450	500	V
Collector-Emitter Voltage	V _{CE0}	250	300	350	400	V
Emitter-Base Voltage	V _{EB0}	5				V
Collector Current	I _C	1				A
Peak Collector Current	I _{CM}	2				A
Base Current	I _B	0.6				A
Power Dissipation (Tc=25°C)	P _C	40				W
Junction Temperature	T _J	-65~+150				°C
Storage Temperature	T _{stg}	-65~+150				°C

Applications:

- High Voltage and High Energy Application

Features:

- 20mJ reverse-energy ratings
- 1A rated collector current
- 250V to 400V min. V_{BR}CEO
- 10MHz min. fr at 10V, 0.2A
- 40W at 25°C case temperature

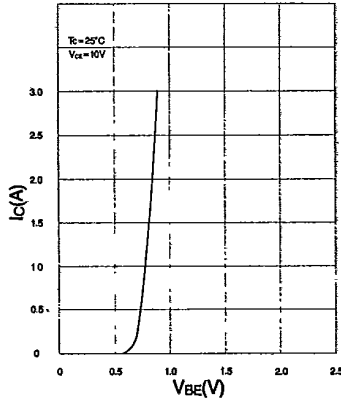
Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	TIP47	TIP48	TIP49	TIP50	Unit
			min. max.	min. max.	min. max.	min. max.	
Collector-Emitter Voltage	V _{CE0}	I _C =30mA, I _B =0	250	300	350	400	V
Collector Cutoff Current	I _{CEO}	V _{CE} =150V, I _B =0	1				mA
		V _{CE} =200V, I _B =0		1			
		V _{CE} =250V, I _B =0			1		
		V _{CE} =300V, I _B =0				1	
Collector Cutoff Current	I _{CES}	V _{CE} =350V, V _{BE} =0	1				mA
		V _{CE} =400V, V _{BE} =0		1			
		V _{CE} =450V, V _{BE} =0			1		
		V _{CE} =500V, V _{BE} =0				1	
Emitter-Base Current	I _{EB0}	V _{EB} =5V, I _C =0	1	1	1	1	mA
DC Current Gain	h _{FE}	V _{CE} =10V, I _C =0.3A	30 150	30 150	30 150	30 150	
		V _{CE} =10V, I _C =1A	10	10	10	10	
Base-Emitter Voltage	V _{BE}	V _{CE} =10V, I _C =1A	1.5	1.5	1.5	1.5	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =1A, I _B =0.2A	1	1	1	1	V
Small-Signal Current Gain	h _{fe}	V _{CE} =10V, I _C =0.2A, f=1kHz	25	25	25	25	
		V _{CE} =10V, I _C =0.2A, f=2MHz	5	5	5	5	

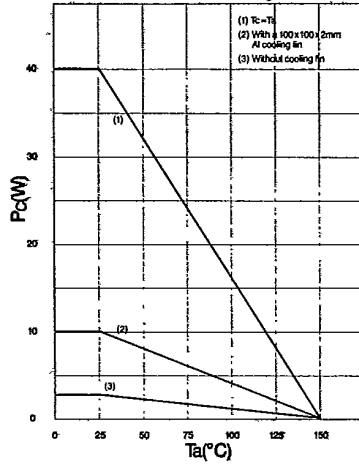
**TIP47
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TIP49
TIP50**

Typical Characteristics

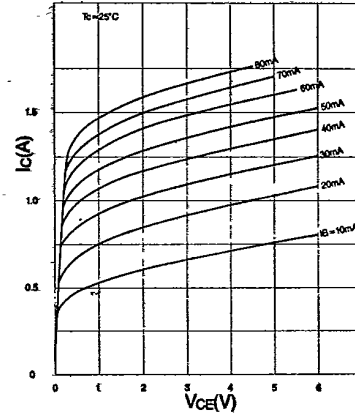
V_{BE} vs. I_C characteristics



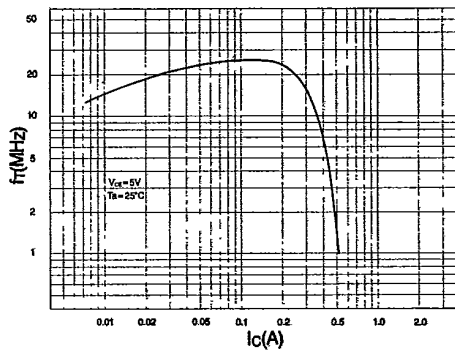
P_C vs. T_a characteristics



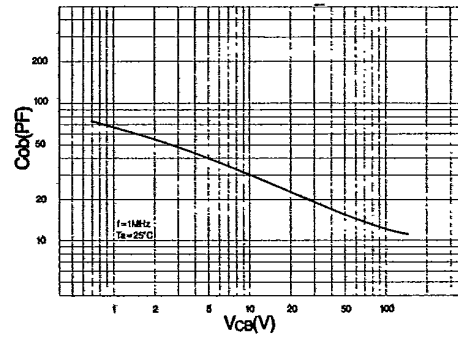
V_{CE} vs. I_C characteristics



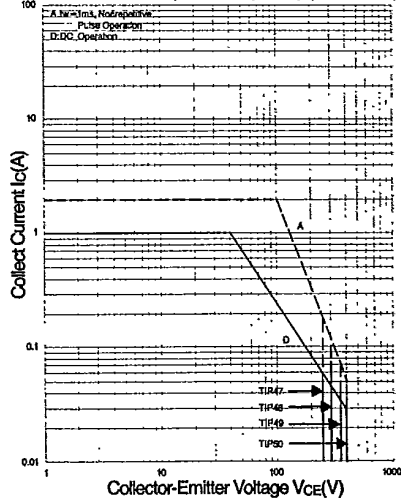
f_T vs. I_C characteristics



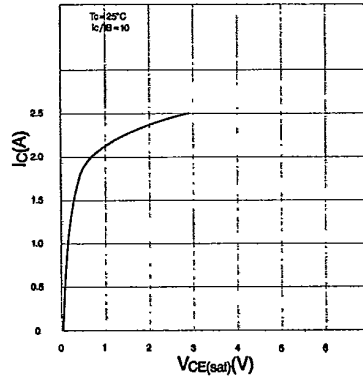
C_{ob} vs. V_{CB} characteristics



Area of Safe Operation (ASO) ($T_C = 25^\circ\text{C}$)



$V_{CE(sat)}$ vs. I_C characteristics



h_{FE} vs. I_C characteristics

